GOSH 2017
Gathering for Open Science Hardware
Santiago, Chile | March 22-25

Hardware forms a vital part of the scientific experimental process and is essential for researchers, educators and inventors, but the current supply chain limits access and impedes creativity and customization through high mark-ups and proprietary designs. Open Science Hardware addresses part of this problem through sharing open designs, often taking advantage of modern digital fabrication techniques. Expanding the reach of this approach within academic research, citizen science, education and industry has potential to increase access to experimental tools and ease their customization and reuse while lowering costs. A growing number of people around the world are developing and using Open Science Hardware, but a coherent, self-organizing community has yet to completely emerge that could raise its profile and drive the social change within institutions that will increase uptake.

GOSH 2016 successfully brought together 50 of the most active developers, users and thinkers in Open Science Hardware, complemented by expertise from the wider open science movement, to seed just such a community. We're asking for your support to build on this success through organizing GOSH 2017 as a chance to grow membership of the community, particularly among researchers from the global South, to reflect on progress, articulate a strategy for change in the form of an actionable roadmap and to reach out to broader groups of innovators.

Why the time is right for GOSH

Despite huge advances in technology, many scientific endeavours, particularly outside of well-resourced academic institutions, are being held back by lack of access to research-grade, affordable and customisable hardware for even routine experimental techniques. We believe this holds back the pace of invention and innovation and is detrimental to STEM education and engagement with science.

There is an increasing movement towards open access to scientific knowledge, data, software and open participation in the scientific process. Furthermore, open hardware in general has become increasingly popular not only online but in physical makerspaces, hackspaces, FabLabs and other community workshops. The time is right to extend and consolidate the existing energy around open hardware for science.

Early adopters of open science hardware are disparate and separated by geographical and disciplinary borders which limit interaction, exchange and community building. They share common challenges such as: building sustainable businesses to develop and supply open science hardware while maintaining a commitment to increasing access; documenting their hardware appropriately for others to use and build on their innovations; building a community of practise that is inclusive to all genders and nationalities.

Outcomes from GOSH 2016

"Advancing open hardware in academia, I never thought it would be possible to make it a reality...Now I think it is possible, and I am invested in it." GOSH 2016 Participant

"Gatherings like GOSH [are] essential to making changes to larger systems of doing science and institutional trajectories." GOSH 2016 Participant

GOSH 2016 brought together community leaders for the first international and interdisciplinary conference focused on Open Science Hardware. The extended group that was created is dynamic and engaged. Other participants found the diversity of attendees and their passion for change the most important feature of the meeting. Our

work was featured at Mozilla Festival, Science Hackday PDX, Borders Festival, Interactivos! 2016 and in publications including Nature News, Global Young Academy Connections, Lab Times, Makery and the Guardian.

Ongoing activities of the GOSH community since March 2016 include setting up an Open Access journal for open science hardware at Ubiquity Press with over ten GOSH participants on the editorial board; authoring the GOSH Community Manifesto which has now been translated into six languages; co-organising The Brazilian Gathering for Free and Open Source Hardware (e-HAL) that took place in October 2016.

Expected outcomes of GOSH 2017

We expect the 2017 event to bring the ideas and collaborations seeded in 2016 to the point of action and to articulate a clear roadmap for the open science hardware community to complement our GOSH Manifesto. Other expected outcomes include:

Scaling up the community, we will welcome up to 100 people from more countries and broader backgrounds than was possible in 2016.

Establishing working groups to tackle complex problems like design of sustainable business models, design strategies for calibration and reproducibility of measurements, interactions with open and citizen science.

Engaging local Latino communities, taking advantage of being located in Chile to form local connections and raise the profile of open technologies for science in the region.

Launching our roadmap for open science hardware in print form to present to policy makers and decision makers.

Support Requested

We have obtained various support for the meeting: the venue has been provided free of cost by the Anacleto Angelini UC Innovation Center, Pontificia Universidad Católica de Chile and all organisers are volunteering their time. Where possible, participants will fund their own attendance but we are actively seeking sponsorship of accommodation, catering, build workshops and most importantly travel, to enable participation by a diverse community regardless of their resources.

Our estimated overall budget is $155k including up to $110k to ensure we have sufficient travel grants to enable participation by a diverse community regardless of their resources. We believe this is essential to meet our demographic goals of 52% of participants to be people of colour, Indigenous people, and people from the Global South, 33% to be from Latin America and 33% of participants to come from community-based organisations and NGOs.

We are delighted to accept sponsorship at any level, from funding for multiple travel grants through to in-kind donations of kits and hardware, services and supplies.

All sponsors will have their contribution and support highlighted on the website, social media and at the event. We are happy to talk individually to sponsors about the best way to achieve their goals in supporting GOSH.

If you are able to offer support or would like to discuss opportunities and options please contact Jenny Molloy on jcm80@cam.ac.uk.

Thank you very much for you consideration, on behalf of the organising committee:
Shannon Dosemagen, Public Lab; Greg Austic, PhotoSynq; Ivana Gadjanski, University of Belgrade; Jenny Molloy, University of Cambridge ; Francois Grey, University of Geneva; Javier Serrano, CERN; Max Liboiron, Memorial University of Newfoundland; Fernan Federici, Pontificia Universidad Católica de Chile.